



NOAA Support for...

The US Ocean Action Plan

Gulf of Mexico

Regional Partnership

## Enhanced resiliency of coastal communities to storm surge and flooding through improved data, models, tools, and methodologies

*Working with multiple partners in the demonstration area of Pensacola, Florida, the NOS Storm Surge Partnership Project will work to enhance the resilience of Gulf of Mexico coastal communities to storm surge inundation and flooding.*

The Gulf of Mexico region has been the site of numerous devastating hurricanes and coastal storms. Coastal processes, such as erosion and sea-level rise and increased coastal development are increasing the vulnerability of Gulf of Mexico coastal communities to these storms. As an economically-important area facing urgent ocean and coastal issues, the Gulf of Mexico is an ideal location for federal, state, and local partners to work together to improve the tools needed by coastal managers to make informed decisions to save lives and property.

In the face of an impending hurricane landfall, coastal emergency managers and officials must make decisions to protect lives and property. For many of these decisions, managers rely on NOAA storm surge products. Enhancing these storm surge products can improve coastal emergency decision-making and reduce threats to lives and property.

**NOAA's Ocean Service (NOS) Storm Surge Partnership Project** aims to improve storm surge and coastal flood forecast, warning, and response and identify areas of future storm surge model development. A goal of the project is also to illustrate the scientific and socioeconomic value of integrated ocean observations in addressing management issues.

### Improved Storm Surge Products

To better understand how storm surge products are being used and how to improve these products, the Storm Surge Partnership Project will work to:

**Determine the needs of the coastal management community.** The project team will determine how coastal managers currently use storm surge forecasts and inundation maps and determine what additional information or improvements would increase the utility of these tools. After identifying coastal management needs, the project team will bring together representatives from the scientific community to determine technical and scientific strategies for, and gaps in, meeting those needs.

**Acquire and integrate needed coastal and ocean observation data.** Based on data and information gaps identified during the workshops, the project team will work with the larger Integrated Ocean Observing System (IOOS) community to gather and merge observation data such as water levels, storm high water marks, wind speeds and directions, river discharges, and satellite products.

**Improve inundation maps using new data-collection technologies.** Researchers will assemble, collect, and integrate geospatial data, including coastal elevation and sea level data, to produce enhanced base maps for the study area. Improved base maps will provide important information needed to determine coastal areas susceptible to flooding.

**Test a prototype storm surge model.** Using newly acquired and assembled data in conjunction with recent developments in coastal models and in response to user needs, project partners will develop a prototype storm surge model for the greater Pensacola region. Model results will be evaluated as to the model's capability to provide improved predictions.

**Develop innovative management products.** Based on the results of the prototype storm surge model, a series of innovative products will be distributed to coastal officials and decision-makers to evaluate which products most closely and effectively meet their needs. These needs include the ability of coastal communities to mitigate storm impacts, thus reducing loss of life, property damage, and ecosystem destruction.



## The Value of Ocean Observations in an Integrated Approach

The Storm Surge Partnership Project team will work with federal, state, and local resource management partners and coastal communities to better coordinate and integrate new and existing programs for gathering, analyzing, distributing, and applying ocean observation data and information. By taking an integrated approach, the resources and expertise available for managing storm surge inundation and coastal flooding will increase.

Analyzing the socioeconomic impacts of information and tools developed during the project will help to demonstrate the value of applying integrated ocean observations to management issues and to build support for such an approach. For example, enhancements to storm surge models may allow emergency managers to decrease the size of their evacuation zones during hurricanes, potentially saving coastal communities millions of dollars from unnecessary evacuations.

This project will also strengthen existing and build new partnerships between federal, state, and local officials, fostering long-term collaboration. Lessons learned throughout the project will assist future data sharing and integration. Lastly, the products and services from this project will be exported to other coastal communities in the U.S. and abroad.

## Supporting the Gulf of Mexico Regional Partnership

The Storm Surge Partnership Project is one of two partnership projects which are integral components of NOAA's support for the US Ocean Action Plan Gulf of Mexico Regional Partnership; the other project will advance the monitoring and forecasting of harmful algal blooms to benefit public health and coastal economies. By employing the systematic collaboration and integration of effort specifically called for in the Ocean Action Plan, the partnership projects will help federal, state, and local Gulf of Mexico partners address management issues identified by the Gulf of Mexico Alliance as key priorities. For example, tools developed through the harmful algal bloom partnership project will contribute to enhanced public health by improving ocean observing systems used to monitor water quality for shellfish beds and beaches.

Through the coordination and integration of new and existing projects, the Gulf of Mexico Regional Partnership provides an opportunity for NOAA to work with state and federal representatives to address many of the challenges in the Gulf, while helping to build regional ocean observation capabilities.

*The National Ocean Service (NOS) resides within the National Oceanic and Atmospheric Administration (NOAA). NOAA works to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs.*

## Project Partners

- ◆ NOAA's Ocean Service
- ◆ NOAA's National Weather Service
- ◆ Coastal States Organization
- ◆ Sea Grant
- ◆ Federal Emergency Management Agency
- ◆ US Army Corps of Engineers
- ◆ Association of State Floodplain Managers
- ◆ National Emergency Management Association
- ◆ NASA Goddard Space Flight Center
- ◆ US Naval Research Laboratory
- ◆ Southeastern Universities Research Association (SURA)
- ◆ Gulf of Mexico Coastal Observing System (GCOOS)
- ◆ US EPA Gulf of Mexico Program

## For additional information

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